

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: **Douglis et al.** §  
Serial No. **10/737,213** § Group Art Unit: **2167**  
Filed: **December 16, 2003** § Examiner: **Miranda Le**  
For: **Method and Apparatus for Data** §  
**Redundancy Elimination at the Block** §  
**Level** §

**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, VA 22313-1450**

**35526**  
PATENT TRADEMARK OFFICE  
CUSTOMER NUMBER

**APPEAL BRIEF (37 C.F.R. 41.37)**

This brief is in furtherance of the Notice of Appeal, filed in this case on February 14, 2007.

A fee of \$500.00 is required for filing an Appeal Brief. Please charge this fee to IBM Corporation Deposit Account No. 50-0510. No additional fees are believed to be necessary. If, however, any additional fees are required, I authorize the Commissioner to charge these fees which may be required to IBM Corporation Deposit Account No. 50-0510. No extension of time is believed to be necessary. If, however, an extension of time is required, the extension is requested, and I authorize the Commissioner to charge any fees for this extension to IBM Corporation Deposit Account No. 50-0510.

**REAL PARTY IN INTEREST**

The real party in interest in this appeal is the following party: International Business Machines Corporation of Armonk, New York.

### **RELATED APPEALS AND INTERFERENCES**

With respect to other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal, there are no such appeals or interferences.

## **STATUS OF CLAIMS**

### **A. TOTAL NUMBER OF CLAIMS IN APPLICATION**

Claims in the application are: 1-3, 7-15, 17-20 and 24-34.

### **B. STATUS OF ALL THE CLAIMS IN APPLICATION**

1. Claims canceled: 4-6, 16, 21-23 and 35-36.
2. Claims withdrawn from consideration but not canceled: None.
3. Claims pending: 1-3, 7-15, 17-20 and 24-34.
4. Claims allowed: None.
5. Claims rejected: 1-3, 7-15, 17-20 and 24-34.
6. Claims objected to: None.

### **C. CLAIMS ON APPEAL**

The claims on appeal are: 1-3, 7-15, 17-20 and 24-34.

## **STATUS OF AMENDMENTS**

No amendments were submitted after the Final Office Action of January 11, 2007.

## **SUMMARY OF CLAIMED SUBJECT MATTER**

### **A. CLAIM 1 - INDEPENDENT**

The subject matter of claim 1 is a method, in a data processing system, for reducing the size of an object. The object is divided into a plurality of blocks (Specification p. 7 ll. 3-9, p. 10 ll. 14-23, and Figures 6A-6C). Similar blocks within the plurality of blocks are identified and differentially compressed (Specification p. 11 ll. 14-24, and Figures 6A-6C). Identical blocks are identified and suppressed without differentially compressing the identical blocks (Specification p. 10 ll. 25-26, p. 11 ll. 1-5, and Figures 6A-6C). Data compression is performed on at least one block, wherein the at least one block is neither differentially compressed nor suppressed, and wherein performing the data compression forms a reduced object (Specification p. 11 line 25 through p. 12 line 2, and Figures 6A-6C). The reduced object is stored in a computer readable media (Specification p. 14 ll. 19-24, and Figure 8).

### **B. CLAIM 18 - INDEPENDENT**

The subject matter of claim 18 is a data processing apparatus for reducing the size of an object. The object is divided into a plurality of blocks (Specification p. 7 ll. 3-9, p. 10 ll. 14-23, and Figures 6A-6C). Similar blocks within the plurality of blocks are identified and differentially compressed (Specification p. 11 ll. 14-24, and Figures 6A-6C). Identical blocks are identified and suppressed without differentially compressing the identical blocks (Specification p. 10 ll. 25-26, p. 11 ll. 1-5, and Figures 6A-6C). Data compression is performed on at least one block, wherein the at least one block is neither differentially compressed nor suppressed, and wherein performing the data compression forms a reduced object (Specification p. 11 line 25 through p. 12 line 2, and Figures 6A-6C). The reduced object is stored in a computer readable media (Specification p. 14 ll. 19-24, and Figure 8).

**C. CLAIM 34 - INDEPENDENT**

The subject matter of claim 1 is a computer program product, in a computer readable medium, for reducing the size of an object. The object is divided into a plurality of blocks (Specification p. 7 ll. 3-9, p. 10 ll. 14-23, and Figures 6A-6C). Similar blocks within the plurality of blocks are identified and differentially compressed (Specification p. 11 ll. 14-24, and Figures 6A-6C). Identical blocks are identified and suppressed without differentially compressing the identical blocks (Specification p. 10 ll. 25-26, p. 11 ll. 1-5, and Figures 6A-6C). Data compression is performed on at least one block, wherein the at least one block is neither differentially compressed nor suppressed, and wherein performing the data compression forms a reduced object (Specification p. 11 line 25 through p. 12 line 2, and Figures 6A-6C). The reduced object is stored in a computer readable media (Specification p. 14 ll. 19-24, and Figure 8).

## **GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

The grounds of rejection to review on appeal are as follows:

**A. GROUND OF REJECTION 1 (1-3, 7-15, 17-20 and 24-34)**

Whether claims 1-3, 7-15, 17-20 and 24-34 are directed to statutory subject matter under 35 U.S.C. § 101.

**B. GROUND OF REJECTION 2 (Claims 1, 10, 17-18, 27, and 33-34)**

Whether claims 1, 10, 17-18, 27, and 33-34 are unpatentable over *Cousins*, et al., Method for Compressing Character-Based Markup Language Files Including Non-Standard Characters, U.S. Patent Publication No. 2002/0107866 A1 (published, August 8, 2002) (hereinafter “*Cousins*”) in view of *Lee*, Method for Compressing and Decompressing Data, U.S. Patent Publication No. 2003/0085823 A1 (published, May 8, 2003) (hereinafter “*Lee*”) under 35 U.S.C. § 103(a).

**C. GROUND OF REJECTION 3 (Claims 2, and 19)**

Whether claims 2 and 19 are unpatentable over *Cousins* in view of *Lee*, and further in view of *Riggs* et al., Apparatus and Method for Efficiently and Securely Transferring Files Over a Communications Network, U.S. Patent Publication No. 2004/0199669 A1 (published, October 7, 2004) (hereinafter “*Riggs*”) under 35 U.S.C. § 103(a).

**D. GROUND OF REJECTION 4 (Claims 3, 7-9, 15, 20, 24-26 and 32)**

Whether claims 3, 7-9, 15, 20, 24-26 and 32 are unpatentable over *Cousins* in view of *Lee*, and further in view of *Wightman*, Data Compression Method and Apparatus, U.S. Patent No. 5,850,565 (issued, December 15, 1998) (hereinafter “*Wightman*”) under 35 U.S.C. § 103(a).

**E. GROUND OF REJECTION 5 (Claims 11-12, 28, and 29)**

Whether claims 11-12 and 28-29 are unpatentable over *Cousins* in view of *Lee*, and further in view of *McCanne* et al., Content-Based Segmentation Scheme for Data Compression in Storage and Transmission Including Hierarchical Segment Representation, U.S. Patent Publication No.

2004/0174276 A1 (published, September 9, 2004) (hereinafter “*McCanne*”) under 35 U.S.C. § 103(a).

**F. GROUND OF REJECTION 6 (Claims 13-14, and 30-31)**

Whether claims 13-14 and 30-31 are unpatentable over *Cousins* in view of *Lee*, and further in view of *Pulst* et al., Determining a Characteristic Function from a Matrix According to a Scheme, U.S. Patent Publication No. 2003/0212653 A1 (published, November 13, 2003) (hereinafter “*Pulst*”) under 35 U.S.C. § 103(a) .

## ARGUMENT

### **A. GROUND OF REJECTION 1 (1-3, 7-15, 17-20 and 24-34)**

The Examiner rejects claims 1-3, 7-15, 17-20, and 24-34 as directed to non-statutory subject matter under 35 U.S.C. § 101. Applicants request that the Board of Patent Appeals and Interferences overturn this rejection and direct the Examiner to allow the claims.

#### **A.1 Claims 1-3, 7-15, 17-20 and 24-34**

Claim 1 is a representative claim of this grouping of claims. The Examiner states that:

**Claims 1-36** are rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter.

(a) Claim 1 defines non-statutory processes because as a whole, they merely present an abstract idea without any practical application that produces a useful, concrete and tangible result.

It is suggested that the phrase “storing the reduced object in a computer readable media” should be changed to “storing the reduced object in a computer storage readable media”.

Final Office Action dated January 11, 2007, p. 2.

Contrary to the Examiner’s assertions, all claims comply with the standards presented in the MPEP and as required by *State Street*, *In re Lowry*, and *Warmerdam*. For example, previously presented claim 1 is as follows:

A method, in a data processing system, for reducing the size of an object, the method comprising:

- dividing an object into a plurality of blocks;
- identifying similar blocks within the plurality of blocks;
- differentially compressing the similar blocks;
- identifying identical blocks within the plurality of blocks;
- suppressing the identical blocks without differentially compressing the identical blocks;
- performing data compression on at least one block within the plurality of blocks, wherein the at least one block is not differentially compressed, wherein the at least one block is not suppressed, and wherein the step of performing data compression on the at least one block forms a reduced object; and
- storing the reduced object in a computer readable medium.

Claim 1 is directed to a computer implemented method *in a data processing system* for reducing the size of an object. The method includes the step of storing the reduced object in a

computer readable medium. A computer readable medium is concrete and tangible because objects can be stored in the computer readable medium and then later retrieved. The step of storing the reduced object results in the reduced object being stored in the computer readable medium so that it can later be retrieved. Thus, claim 1 is directed to a method that creates a concrete and tangible result in a data processing system.

Moreover, the Examiner's suggestion that the step in the claim be changed to "storing the reduced object in a computer storage readable media" by adding the adjective "storage" would result in the addition of a redundant word. *Storing* the reduced object in a computer readable media indicates that the computer readable media is used for storage; further qualifying the computer readable media as "storage" media is unnecessary.

Additionally, the Guidelines provide that:

To satisfy section 101 requirements, the claim must be for a practical application of the § 101 judicial exception, which can be identified in various ways:

The claimed invention "transforms" an article or physical object to a different state or thing. The claimed invention otherwise produces a useful, concrete and tangible result, based on the factors discussed below.

Interim Guidelines of October 26, 2005, p.19. The Guidelines also provide that:

*The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the tangible requirement does require that the claim must recite more than a § 101 judicial exception, in that the process claim must set forth a practical application of that § 101 judicial exception to produce a real-world result.* Benson, 409 U.S. at 71-72, 175 USPQ at 676-77 (invention ineligible because had "no substantial practical application."). "[A]n application of a law of nature or mathematical formula to a ... process may well be deserving of patent protection." Diehr, 450 U.S. at 187, 209 USPQ at 8 (emphasis added); see also Corning, 56 U.S. (15 How.) at 268, 14 L.Ed. 683 ("It is for the discovery or invention of some practical method or means of producing a beneficial result or effect, that a patent is granted . . ."). In other words, the opposite meaning of "tangible" is "abstract."

Interim Guidelines of October 26, 2005, pp. 20-21 (emphasis added).

Thus, the claims do not have to be tied to a particular machine or apparatus or operated to change articles or materials to a different state or thing. The only requirement is that the process claim must set forth a practical application to produce a real-world result. In the case of claim 1, the step of "storing the reduced object in a computer readable medium" provides the practical

result. Accordingly, claim 1 meets the requirements of the Interim Guidelines with respect to patentability under 35 U.S.C. § 101. The same result occurs when the claims are compared to the underlying case law as when the claims are compared to the Guidelines.

Additionally, Applicants are under no requirement to recite *in the claims themselves* the purpose of the claimed invention. For example, the interim guidelines published by the PTO provide that:

Accordingly, a *complete disclosure* should contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful.

Interim Guidelines of October 26, 2005, p. 4

The Guidelines provide that the *disclosure* should contain some indication of the practical application for the claimed invention. However, the practical application need not appear in the text of the claims. Instead, only features necessary to implement the practical application must appear in the text of the claims.

Regarding the other independent claims, claim 18 is directed to computer apparatus for reducing the size of an object. Claim 34 is directed to computer program product, in a computer readable medium, for reducing the size of an object and storing the reduced object in a computer readable medium. As explicitly provided in the case law and Guidelines cited above, both claims are statutory under 35 U.S.C. § 101.

All of the independent claims contain features which make the claims statutory under 35 U.S.C. § 101, as provided by the Guidelines and the standards of accepted case law. Accordingly, the rejection of claims 1-36 under 35 U.S.C. § 101 is incorrect and is without support. For this reason, Applicants request that the Board overturn the rejection and direct the Examiner to allow the claims.

## **B. GROUND OF REJECTION 2 (Claims 1, 10, 17-18, 27, and 33-34)**

The Examiner rejects claims 1, 10, 17-18, 27, and 33-34 as obvious over *Cousins* in view of *Lee*. Appellants request that the Board of Patent Appeals and Interferences overturn this rejection and direct the Examiner to allow the claims.

## **B.1 Claims 1, 10, 17-18, 27, and 33-34**

### **B.1.i The Proposed Combination, Considered as a Whole, Does Not Teach or Suggest All of the Features of Claim 1**

The Examiner rejects claims 1, 10, 17-18, 27, and 33-34 as obvious over *Cousins* in view of *Lee*. Claim 1 is a representative claim in this grouping of claims. Claim 1 is as follows:

A method, in a data processing system, for reducing the size of an object, the method comprising:

- dividing an object into a plurality of blocks;
- identifying similar blocks within the plurality of blocks;
- differentially compressing the similar blocks;
- identifying identical blocks within the plurality of blocks;
- suppressing the identical blocks without differentially compressing the identical blocks;

performing data compression on at least one block within the plurality of blocks, wherein the at least one block is not differentially compressed, wherein the at least one block is not suppressed, and wherein the step of performing data compression on the at least one block forms a reduced object; and

storing the reduced object in a computer readable media.

The Examiner bears the burden of establishing a *prima facie* case of obviousness based on prior art when rejecting claims under 35 U.S.C. §103. *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). If the Patent Office does not produce a *prima facie* case of unpatentability, then without more, the Applicants are entitled to the grant of a patent. *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992). A *prima facie* case of obviousness is established when the teachings of the prior art itself suggest the claimed subject matter to a person of ordinary skill in the art. *In re Bell*, 991 F.2d 781, 783, 26 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993). All limitations of the claimed invention must be considered when determining patentability. *In re Lowry*, 32 F.3d 1579, 1582, 32 U.S.P.Q.2d 1031, 1034 (Fed. Cir. 1994). For an invention to be *prima facie* obvious, the prior art must teach or suggest all claim limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). In the case at hand, the cited references do not teach or suggest all of the limitations of the claims, arranged as they are in the claims.

The Examiner has failed to state a *prima facie* obviousness rejection against claim 1 because neither *Cousins* nor *Lee* teach or suggest all of the features of claim 1. Accordingly, the proposed combination does not teach all of the claimed features and the Examiner has failed to state a *prima facie* obviousness rejection against claim 1.

With regard to claim 1, the Examiner states:

As to claims 1, 34, *Cousins* teaches a method, in a data processing system, for reducing the size of an object (i.e. By compressing the markup language files using the method of the present invention, one can obtain approximately 15% to 20% reduction in the size of the file, [0019]), the method comprising:

- dividing an object (i.e. markup language files) into a plurality of blocks (i.e. tags, attributes of the tags, white spaces, text) ([0011-0014]);
- identifying similar blocks (i.e. “<table>” and “<TABLE>”, [0015]) within the plurality of blocks ([0011-0015]);
- identifying identical blocks (i.e. white spaces) within the plurality of blocks;
- suppressing (i.e. eliminated) the identical blocks without differential compression the identical blocks (i.e. white spaces and end-of-line characters are eliminated to decrease the size of the file, [0011]);
- performing data compression on at least one block within the plurality of blocks, wherein the at least one block is not differentially compressed (i.e. GZIP compression algorithm, [0011]), wherein the at least one block is not suppressed, and wherein the step of performing data compression on the at least one block forms a reduced object (i.e. By compressing the markup language files using the method of the present invention, one can obtain approximately 15% to 20% reduction in the size of the file, [0019]); and
- storing the reduced object in a computer readable media (i.e. The Internet has made a voluminous amount of documents stored on computers around the world readily available to anyone having a computer, [0003]).

*Cousins* does not specifically teach differentially compressing the similar blocks.

Final Office Action of January 11, 2007, pp. 4-5.

*Cousins* does not teach a method, in a data processing system, for reducing the size of an object as recited in claim 1. *Cousins* teaches “a method for compressing character-based markup language files”. *Cousins*, Abstract. *Cousins* is therefore restricted to character-based markup language files. In contrast, claim 1 is not restricted to character-based markup language files and can be used on *any* object in a data processing system, including non-character-based markup language files and files that do not contain a markup language. Therefore, *Cousins* does not teach a method, in a data processing system, for reducing the size of an object.

*Cousins* also does not teach or suggest the feature of “dividing an object into a plurality of blocks” as recited in claim 1. The Examiner mistakenly asserts this feature is taught by citing the following portion of *Cousins*:

[0011] The above objects have been achieved in a method for compressing character-based markup language files in which the tags are converted to a single case format and then the attributes of the tags are placed in a specified order within the tags in order to make the tags more uniform. This order enables larger strings of common text to be found. Additionally,

for non-standard characters, the shorter of the two text string representations, describing the character by name or by number, will be determined and will be used in order to reduce character space. Finally, any unnecessary white spaces and end-of-line characters are eliminated to decrease the size of the file. The document that results from the method of the invention will compress more efficiently, yet the content is semantically identical to its original form. The method of the present invention is intended to be used in conjunction with the GZIP compression algorithm, or other similar known compression algorithms, in order to further increase the compression of the overall file, and thus increase the speed at which the file can be transmitted.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 is a diagram of a typical HTML web document as is known in the art.

[0013] FIG. 2 is a flow diagram of the method of the present invention.

#### BEST MODE FOR CARRYING OUT THE INVENTION

[0014] For explanatory purposes, FIG. 1 shows a typical example of a web document 30 written in the HTML markup language. As explained above, the tags such as the HTML tags 41, 42 and the body tags 51, 52 are placed between marker characters and are usually arranged in pairs, with one of the pair used to start a section and the other to close it. Some kind of text 43 can be arranged between the tags. For example, between the TITLE tags 44, 46 there is some text 43 that states the title of the web site, "Welcome to the Web Site". The markup file 30 also includes a meta tag 44 which contains information that search engines use to locate the web document. Within the tags are attributes 47 and arguments 48. An attribute is a characteristic about a tag or a data field, while an argument is a parameter or value of the attribute. For example, the attribute 47 specifies a characteristic about the frameset tag and the argument 48 indicates the parameters of the attribute 47. In FIG. 1, the stacked dots 54 indicate that additional frameset characteristics may be added to the web page 30. This information is still part of the heading and is not displayed for the user to see. The stacked dots 53 represent a plurality of text that is included between the two body tags 51, 52. This text is the text that the user would see displayed on the web page.

[0015] With reference to FIG. 2, the method of the present invention is practiced on a markup language file 32, similar to that which is described with reference to FIG. 1. The method of the present invention 60 precompresses the markup language in the file prior to a subsequent overall compression of the web document file, such that the resultant file is more compressed and, thus, easier to transmit. The method 60 of the present invention starts with, step 61, converting all of the tags, including the attributes within the tags, to a single case format. As discussed, the tags of the markup language are case insensitive. Therefore "<table>" and "<TABLE>" are semantically identical. By converting all of the tags to be in either all lower case letters or all upper case letters, the possible number of combinations necessary for the compression algorithm to evaluate is reduced. The next step, step 63, is to place all of the attributes in an order within the tags such that longer strings of common text may be found. For example, the attributes could be alphabetized such that strings of

common text would be next to each other and would be easier to combine. Additionally, redundant attributes could be combined. For example, in FIG. 1, the attributes "frame spacing", "marginwidth", and "scrolling", are used more than once. By arranging these attributes so that the attributes are easily combined together, the compressibility of the file is increased. (emphasis added)

This portion of *Cousins* does not teach or suggest the feature of "dividing an object into a plurality of blocks" as recited in claim 1. The above portion of *Cousins* states that "[t]he method 60 of the present invention starts with, step 61, *converting all of the tags*, including the attributes within the tags, *to a single case format*" (emphasis added). Converting all the tags in a markup language file to a single case format is not equivalent to dividing an object into a plurality of blocks. Converting all the tags in a markup language file to a single case format results in all the tags having the same case format. For example, if the original markup language file has the tags <table>, <Table>, and <TABLE>, all of the tags are converted to upper case format, <TABLE> or lower case format, <table>. In contrast, dividing an object into a plurality of blocks, as recited in claim 1, does not change the case format of the contents of the blocks.

The above portion of *Cousins* then states that "[t]he next step, step 63, is to *place all of the attributes in an order within the tags* such that longer strings of common text may be found" (emphasis added). Placing the attributes in an order within the tags such that longer strings of common text may be found is not equivalent to dividing an object into a plurality of blocks. Placing the attributes in an order within the tags re-orders the attributes. In contrast, dividing an object into a plurality of blocks, as recited in claim 1, does not place the blocks in any particular order. Therefore, *Cousins* does not teach or suggest the feature of "dividing an object into a plurality of blocks" as recited in claim 1.

Neither *Cousins* nor *Lee* teach or suggest the feature of "differentially compressing the similar blocks". The Examiner admits, and Applicants agree, that *Cousins* does not teach or suggest the feature of "differentially compressing the similar blocks". However, the Examiner mistakenly asserts that *Lee* teaches this feature:

*Cousins* does not specifically teach differentially compressing the similar blocks. However, *Lee* teaches differentially compressing the similar blocks (i.e. The data compressor receives a series of N data elements, where N is a positive integer, and computes respective differences between two adjacent data among the data. When the differences are all less than a reference value, the data compressor generates delta data on the basis of the differences, receives a series of N new data elements the series of the prior data, and returns to the step of computing the differences, [0045]).

Final Office Action of January 11, 2007, pp. 4-5.

However, *Lee* does not teach or suggest the feature of “differentially compressing the similar blocks” as recited in claim 1. The Examiner mistakenly asserts that this feature is taught by citing the following paragraph 0045 of *Lee*:

The feature of the present invention may be achieved by the following method for compressing data using a data compressor. The data compressor receives a series of N data elements, where N is a positive integer, and *computes respective differences between two adjacent data* among the data. When the differences are all less than a reference value, the data compressor generates delta data on the basis of the differences, receives a series of N new data elements the series of the prior data, and returns to the step of computing the differences. When the differences are the reference value or less and at least one delta data is generated, the data compressor outputs a command indicating that the delta data are compressed on the basis of the differences, the number of the delta data, and the delta data values.

Final Office Action of January 11, 2007, p. 5.

The cited portion of *Lee* teaches receiving data elements, computing respective differences between two adjacent data, and generating delta data when the differences are less than a reference value. Thus, *Lee* only computes the *differences between two adjacent data* among the received data elements and generates delta data only when the difference between two adjacent data is less than a reference value. In other words, no differences are computed for non-adjacent data. Therefore, if two data elements are similar but not adjacent, then no differences are computed and no delta data is generated.

For example, assume that three data elements are received such that “ABCD” is the first data element, “WXYZ” is the second data element, and “ABCE” is the third data element. Here, “ABCD” is compared to “WXYZ” because they are adjacent and “WXYZ” is compared to “ABCE” because they are adjacent. In this example, the differences between “ABCD” and “WXYZ”, and between “WXYZ” and “ABCE” are likely to be greater than any reference value because each set of two adjacent data have nothing in common, and therefore no delta data will be generated. Moreover, the similar phrases “ABCD” and “ABCE” are not compared because they are not adjacent data elements, even though “ABCD” and “ABCE” have the string “ABC” in common.

In contrast, claim 1 recites the feature of “identifying similar blocks within the plurality of blocks”. Given the blocks “ABCD”, “WXYZ”, and “ABCE”, claim 1 identifies “ABCD” and “ABCE” as similar blocks, regardless of the order the blocks might be in. The next step in claim

1 then differentially compresses the similar blocks.

Thus, given the sequence of blocks “ABCD”, “WXYZ”, and “ABCE”, *Lee* will only compare two adjacent data, and finding the difference greater than any reference value, not generate any delta data. In contrast, claim 1 will compare all blocks with each other, find that “ABCD” and “ABCE” are similar, and differentially compress the similar blocks. Thus, claim 1 is able to find similar blocks and differentially compress the similar blocks while *Lee* is not. Therefore, given the same sequence of blocks, *Lee* produces entirely different results from claim 1. For this reason, *Lee* does not teach the features of claim 1.

Because neither *Cousins* nor *Lee* teach or suggest all of the features of claim 1, the proposed combination of these references, considered as a whole, does not teach or suggest all of the features of claim 1. Accordingly, under the standards of *In re Royka*, the Examiner failed to state a *prima facie* obviousness rejection against claim 1, or the other claims in this grouping of claims. The Examiner has failed to meet the burden of establishing a *prima facie* case of obviousness under the standards of *In re Fritch*, and therefore Applicants are entitled to the grant of a patent under the standards of *In re Oetiker*.

## **B.2. The Examiner Failed to State a Proper Teaching, Suggestion, or Motivation to Combine the References**

A proper *prima facie* case of obviousness cannot be established by combining the teachings of the prior art absent some teaching, incentive, or suggestion supporting the combination. *In re Napier*, 55 F.3d 610, 613, 34 U.S.P.Q.2d 1782, 1784 (Fed. Cir. 1995). The Examiner bears the burden of establishing a *prima facie* case of obviousness based on prior art when rejecting claims under 35 U.S.C. §103. *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Regarding a teaching, suggestion, or motivation to combine *Cousins* and *Lee*, the Examiner states:

It would have been obvious to one of ordinary skill of the art having the teaching of *Cousins* and *Lee* at the time the invention was made to modify the system of *Cousins* to include the limitations as taught by *Lee*. One of ordinary skill in the art would be motivated to make this combination in order to generate the delta data comprises converting the differences between the two adjacent data into the corresponding delta values, and concatenating the delta values in series to generate the delta values in view of *Lee*, as doing so would give the added benefit of providing a better method for compressing data, which can improve the compression efficiency when the differences between the adjacent data elements are small as taught by *Lee* ([0043-0046]).

Final Office Action of January 11, 2007, p. 5.

The Examiner has failed to state a proper teaching, suggestion, or motivation to combine the references. The Examiner asserts that one of ordinary skill in the art would be motivated to make this combination as doing so would give the benefit of providing a better method for compressing data, which can improve the compression efficiency when the differences between the adjacent data elements are small as taught by *Lee*. However, the Examiner has only stated a purported advantage of combining the reference. An advantage, by itself, is insufficient to provide a teaching, suggestion, or motivation to combine the references to achieve the claimed invention. Moreover, the Examiner cannot merely pick and choose elements from the prior art simply because an advantage exists to combine the references.

Logically speaking, to constitute a proper teaching, suggestion, or motivation, the Examiner must establish that one of ordinary skill would both recognize the advantage and have a reason to implement the advantage. For example, a first reference may disclose the use of lasers to achieve nuclear fusion. A second reference may disclose that ultra-high power lasers deliver more energy. One of ordinary skill may recognize that an ultra-high power laser would be more useful to achieve nuclear fusion, though one of ordinary skill would be motivated to avoid combining the references because of the extreme expense of ultra-high power lasers. In this example, one of ordinary skill is motivated to avoid implementing the combination, even if he or she recognized the advantage, and so no teaching, suggestion, or motivation exists to combine the references.

Furthermore, the Examiner provided no reason why the purported improvement in compression efficiency is necessary or even desirable. For example, *Cousin's* method is

complete in and of itself for the purpose *Cousin* intends. *Cousin's* method does not require "a better method for compressing data." Given the lack of a need for a better method for compressing data, one of ordinary skill would have no reason to combine the references to achieve the invention of claim 1. Thus, again, no teaching, suggestion, or motivation exists to combine the references to achieve the invention of claim 1. Certainly, the Examiner has not offered a proper teaching suggestion, or motivation to combine the references to achieve the invention of claim 1.

In addition, the Examiner failed to state a *prima facie* obviousness rejection because the Examiner used impermissible hindsight when fashioning the rejection. The Examiner can not have combined the references to achieve the invention of claim 1 without using claim 1 and Applicant's specification as a template. Using claim 1 and Applicant's specification in this way is impermissible hindsight. Accordingly, the Examiner again has failed to state a *prima facie* obviousness rejection of claim 1.

For the reasons presented above, the Examiner has failed to provide a proper teaching, suggestion, or motivation to combine the references and has failed to show that the references, individually or in combination, teach or suggest all the claim limitations. Accordingly, under the standards of *In re Vaeck*, the Examiner has failed to state a *prima facie* obviousness rejection against claim 1 or any other claim in this grouping of claims.

### **C. GROUND OF REJECTION 3 (Claims 2 and 19)**

The Examiner rejects claims 2 and 19 as obvious over *Cousins* in view of *Lee*, and further in view of *Riggs*. Appellants request that the Board of Patent Appeals and Interferences overturn this rejection and direct the Examiner to allow the claims. Claim 2 is a representative claim of this grouping of claims. Claim 2 is as follows:

2. The method of claim 1, wherein the plurality of blocks are fixed in size.

#### **C.1. The Examiner Has Failed To State Proper Motivation To Modify Or Combine The References**

A proper *prima facie* case of obviousness cannot be established by combining the teachings of the prior art absent some teaching, incentive, or suggestion supporting the combination. *In re Napier*, 55 F.3d 610, 613, 34 U.S.P.Q.2d 1782, 1784 (Fed. Cir. 1995). The Examiner bears the burden of establishing a *prima facie* case of obviousness based on prior art when rejecting claims

under 35 U.S.C. §103. *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Regarding a teaching, suggestion, or motivation to combine *Cousins*, *Lee*, and *Riggs*, the Examiner states:

As to claims 2, 19, *Cousins* and *Lee* do not specifically teach the plurality of blocks are fixed in size. However, *Riggs* teaches the plurality of blocks are fixed in size (i.e. 2 MB sized block, [0029]).

It would have been obvious to one of ordinary skill of the art having the teaching of *Cousins*, *Lee* and *Riggs* at the time the invention was made to modify the system of *Cousins* and *Lee* to include the limitations as taught by *Riggs*. One of ordinary skill in the art would be motivated to make this combination in order to asynchronously compress each block in accordance with a preselected compression utility in view of *Riggs*, as doing so would give the added benefit of allowing for rapid compression and decompression asynchronously of file blocks as taught by *Riggs* ([0029]).

Final Office Action of January 11, 2007, p. 8.

The Examiner has failed to state a proper teaching, suggestion, or motivation to combine the references. The Examiner asserts that one of ordinary skill in the art would be motivated to make this combination, as doing so would give the added benefit of allowing for rapid compression and decompression asynchronously of file blocks as taught by *Riggs*. However, the Examiner has only stated a purported advantage of combining the reference. An advantage, by itself, is insufficient to provide a teaching, suggestion, or motivation to combine the references to achieve the claimed invention. For example, the Examiner cannot merely pick and choose elements from the prior art simply because an advantage exists to combine the references. To constitute a proper teaching, suggestion, or motivation, the Examiner must establish that one of ordinary skill would both recognize the advantage and have a reason to implement the advantage.

Furthermore, the Examiner provided no reason why the rapid compression and decompression asynchronously of file blocks is necessary or even desirable. For example, *Cousins*' method is complete in and of itself for the purpose *Cousin* intends, and *Lee*'s method is complete in and of itself for the purpose *Lee* intends. Neither *Cousins*' nor *Lee*'s method requires "rapid compression and decompression asynchronously of file blocks." Given the lack of a need for rapid compression and decompression asynchronously of file blocks, one of ordinary skill would have no reason to combine the references to achieve the invention of claim 2. Thus, again, no teaching, suggestion, or motivation exists to combine the references to achieve the invention of claim 2. Certainly, the Examiner has not offered a proper teaching suggestion, or motivation to combine the references to achieve the invention of claim 2.

The Examiner appears to have created the asserted motivation based on the examiner's personal opinion, which constitutes impermissible hindsight. For this reason, the Examiner failed to state a *prima facie* obviousness rejection because the Examiner used impermissible hindsight when fashioning the rejection. Accordingly, the Examiner has failed to state a *prima facie* obviousness rejection of claim 2.

For the reasons presented above, the Examiner has failed to provide a proper teaching, suggestion, or motivation to combine the references and has failed to show that the references, individually or in combination, teach or suggest all the claim limitations. Accordingly, under the standards of *In re Vaeck*, the Examiner has failed to state a *prima facie* obviousness rejection against claim 2 or claim 19.

#### **D. GROUND OF REJECTION 4 (Claims 3, 7-9, 15, 20, 24-26 and 32)**

The Examiner rejects claims 3, 7-9, 15, 20, 24-26 and 32 as obvious over *Cousins* in view of *Lee*, and further in view of *Wightman*. Appellants request that the Board of Patent Appeals and Interferences overturn this rejection and direct the Examiner to allow the claims.

##### **D.1.i. The Proposed Combination, Considered as a Whole, Does Not Teach or Suggest All of the Features of Claim 1**

The Examiner rejects claims 3, 7-9, 15, 20, 24-26 and 32 as obvious over *Cousins* in view of *Lee*, and further in view of *Wightman*. Claim 3 is a representative claim in this grouping of claims. Claim 3 is as follows:

3. The method of claim 1, wherein the plurality of blocks are variable in size and determined based on characteristics of content of the object.

The Examiner bears the burden of establishing a *prima facie* case of obviousness based on prior art when rejecting claims under 35 U.S.C. §103. *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). If the Patent Office does not produce a *prima facie* case of unpatentability, then without more, the Applicants are entitled to the grant of a patent. *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992). A *prima facie* case of obviousness is established when the teachings of the prior art itself suggest the claimed subject matter to a person of ordinary skill in the art. *In re Bell*, 991 F.2d 781, 783, 26 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993). All limitations of the claimed invention must be considered when determining patentability. *In re Lowry*, 32 F.3d 1579, 1582, 32 U.S.P.Q.2d 1031, 1034 (Fed. Cir. 1994). For an invention to be *prima facie* obvious, the prior art must teach or suggest all claim limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). In the case at hand, the cited references do not teach or suggest all of the limitations of the claims, arranged as they are in the claims.

The Examiner has failed to state a *prima facie* obviousness rejection against claim 3. Claim 3 depends from claim 1, and as previously shown, neither *Cousins* nor *Lee* teach or suggest all of the features of claim 1. The Examiner admits that *Cousins* and *Lee* do not teach or suggest all of the features of claim 3. Furthermore, as shown below, *Wightman* does not cure the deficiencies of *Cousins* and *Lee* in this regard. For this reason alone, the proposed combination does not teach all the features of claim 3. Accordingly, the proposed combination does not teach all of the claimed features and the Examiner has failed to state a *prima facie* obviousness rejection against claim 3.

With regard to claim 3, the Examiner states:

As to claims 3, 20, *Cousins* and *Lee* do not explicitly teach the plurality of blocks are variable in size and determined based on characteristics of content of the object. *Wightman* teaches the plurality of blocks are variable in size and determined based on characteristics of content of the object (*i.e. dividing the input file into portions of respective non-preset sizes, col. 12, lines 25-30*).

Final Office Action of January 11, 2007, pp. 4-5.

However, the reference does not teach or suggest what the Examiner states that it teaches or suggests. Specifically, *Wightman* does not teach or suggest the feature of “the plurality of blocks are variable in size and *determined based on characteristics of content of the object*” (emphasis

added) as recited in claim 3. The Examiner mistakenly asserts this feature is taught by citing the following portion of *Wightman*:

10. A method of sending data from an input file stored by a sending computer, over a communication channel, to a receiving computer, the method comprising the steps:
  - (a) dividing the input file into portions of respective non-preset sizes;
  - (b) for each portion of the input file:
    - (b1) selecting one of a plurality of compression methods;
    - (b2) processing the portion of the input file in accordance with the selected compression method to produce resulting data; and
    - (b3) sending the resulting data from the sending computer, over the communication channel, to the receiving computer.

The above portion of *Wightman* teaches “dividing the input file into portions of respective non-preset sizes” but neither this portion of *Wightman* nor any other portion of *Wightman* teaches or suggests that the plurality of blocks are variable in size and *determined based on characteristics of content of the object*. *Wightman* does not disclose *how* the non-preset sizes are chosen. In contrast, claim 3 recites that the variable size is determined based on the characteristics of content of the object. Therefore, *Wightman* does not teach or suggest the feature of “the plurality of blocks are variable in size and determined based on characteristics of content of the object” as recited in claim 3.

Because neither *Cousins*, nor *Lee*, nor *Wightman* teach or suggest all of the features of claim 3, the proposed combination of these references, considered as a whole, does not teach or suggest all of the features of claim 3. Accordingly, under the standards of *In re Royka*, the Examiner failed to state a *prima facie* obviousness rejection against claim 3, or the other claims in this grouping of claims. The Examiner has failed to meet the burden of establishing a *prima facie* case of obviousness under the standards of *In re Fritch*, and therefore Applicants are entitled to the grant of a patent under the standards of *In re Oetiker*.

#### **D.1.ii. The Examiner Has Failed To State Proper Motivation To Modify Or Combine The References**

A proper *prima facie* case of obviousness cannot be established by combining the teachings of the prior art absent some teaching, incentive, or suggestion supporting the combination. *In re Napier*, 55 F.3d 610, 613, 34 U.S.P.Q.2d 1782, 1784 (Fed. Cir. 1995). The Examiner bears the burden of establishing a *prima facie* case of obviousness based on prior art when rejecting claims

under 35 U.S.C. §103. *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Regarding a teaching, suggestion, or motivation to combine *Cousins*, *Lee*, and *Wightman*, the Examiner states:

As to claims 3, 20, *Cousins* and *Lee* do not explicitly teach the plurality of blocks are variable in size and determined based on characteristics of content of the object. *Wightman* teaches the plurality of blocks are variable in size and determined based on characteristics of content of the object (*i.e. dividing the input file into portions of respective non-preset sizes*, col. 12, lines 25-30).

It would have been obvious to one of ordinary skill of the art having the teaching of *Cousins*, *Lee* and *Wightman* at the time the invention was made to modify the system of *Cousins* and *Lee* to include the limitations as taught by *Wightman*. One of ordinary skill in the art would be motivated to make this combination in order to select the strings that are likely to be most amenable to delta compression in view of *Wightman* (col. 2, line 49-62), as doing so would give the added benefit of performing the improved data compressor that uses variable-length strings and is therefore free of these restrictions as taught by *Wightman* (col. 3, lines 32-39).

Final Office Action of January 11, 2007, p. 8.

The Examiner has failed to state a proper teaching, suggestion, or motivation to combine the references. The Examiner asserts that one of ordinary skill in the art would be motivated to make this combination, as doing so would give the added benefit of performing the improved data compressor that uses variable-length strings and is therefore free of these restrictions as taught by *Wightman*. However, the Examiner has only stated a purported advantage of combining the reference. An advantage, by itself, is insufficient to provide a teaching, suggestion, or motivation to combine the references to achieve the claimed invention. For example, the Examiner cannot merely pick and choose elements from the prior art simply because an advantage exists to combine the references. To constitute a proper teaching, suggestion, or motivation, the Examiner

must establish that one of ordinary skill would both recognize the advantage and have a reason to implement the advantage.

Furthermore, the Examiner provided no reason why selecting the strings that are likely to be most amenable to delta compression is necessary or even desirable. For example, *Cousins*' method is complete in and of itself for the purpose *Cousin* intends, and *Lee*'s method is complete in and of itself for the purpose *Lee* intends. Neither *Cousins*' nor *Lee*'s method requires "select[ing] the strings that are likely to be most amenable to delta compression". Given the lack of a need for selecting the strings that are likely to be most amenable to delta compression, one of ordinary skill would have no reason to combine the references to achieve the invention of claim 3. Thus, again, no teaching, suggestion, or motivation exists to combine the references to achieve the invention of claim 3. Certainly, the Examiner has not offered a proper teaching suggestion, or motivation to combine the references to achieve the invention of claim 3.

Moreover, the Examiner failed to state a *prima facie* obviousness rejection because the Examiner used impermissible hindsight when fashioning the rejection. "It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." *In re Hedges*, 228 U.S.P.Q. 685, 687 (Fed. Cir. 1986). The Examiner cites "col. 12, lines 25-30" of *Wightman*, which constitutes only the preamble and the first step of *Wightman*'s claim 10, completely ignoring the remainder of the claim, lines 31-38. Using claim 3, Applicant's specification, and citing less than half of a claim from the reference constitutes impermissible hindsight. Accordingly, the Examiner again has failed to state a *prima facie* obviousness rejection of claim 3.

For the reasons presented above, the Examiner has failed to provide a proper teaching, suggestion, or motivation to combine the references and has failed to show that the references, individually or in combination, teach or suggest all the claim limitations. Accordingly, under the standards of *In re Vaeck*, the Examiner has failed to state a *prima facie* obviousness rejection against claims 3, 7-9, 15, 20, 24-26 and 32.

## **E. GROUND OF REJECTION 5 (Claims 11-12 and 28-29)**

The Examiner rejects claims 11-12 and 28-29 as obvious over *Cousins* in view of *Lee*, and further in view of *McCanne*. Appellants request that the Board of Patent Appeals and Interferences overturn this rejection and direct the Examiner to allow the claims. Claim 11 is a representative claim of this grouping of claims. Claim 11 is as follows:

11. The method of claim 10, wherein identifying one or more features includes calculating one or more fingerprints for the plurality of blocks.

### **E.1. The Examiner Has Failed To State Proper Motivation To Modify Or Combine The References**

A proper *prima facie* case of obviousness cannot be established by combining the teachings of the prior art absent some teaching, incentive, or suggestion supporting the combination. *In re Napier*, 55 F.3d 610, 613, 34 U.S.P.Q.2d 1782, 1784 (Fed. Cir. 1995). The Examiner bears the burden of establishing a *prima facie* case of obviousness based on prior art when rejecting claims under 35 U.S.C. §103. *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Regarding a teaching, suggestion, or motivation to combine *Cousins*, *Lee*, and *Riggs*, the Examiner states:

As to claims 11, 28, *Cousins* and *Lee* do not specifically teach identifying one or more features includes calculating one or more fingerprints for the plurality of blocks.

However, *McCanne* teaches identifying one or more features includes calculating one or more fingerprints for the plurality of *blocks* (*i.e. the function evaluates to 1 for a given fingerprint having a given offset and window, [0049]*).

It would have been obvious to one of ordinary skill of the art having the teaching of *Cousins*, *Lee* and *McCanne* at the time the invention was made to modify the system of *Cousins* and *Lee* to include the limitations as taught by *McCanne*. One of ordinary skill in the art would be motivated to make this combination in order to determining (*sic*)

whether the offset is to be designated as a cut point and segmenting the input data as indicated by the set of cut points in view of McCanne, as doing so would give the added benefit of providing the compression that can potentially make it feasible to use a low bandwidth link for high bandwidth applications since it reduces the number of actual bits required to represent a larger input sequence. Similarly, compression can potentially enhance performance or capacity of a file system by reducing the number of bits required to represent all of the files in the system as taught by McCanne ([0009]).

Final Office Action of January 11, 2007, pp. 12-13.

The Examiner has failed to state a proper teaching, suggestion, or motivation to combine the references. The Examiner asserts that one of ordinary skill in the art would be motivated to make this combination, as doing so would give the added benefit of providing the compression that can potentially make it feasible to use a low bandwidth link for high bandwidth applications since it reduces the number of actual bits required to represent a larger input sequence. However, the Examiner has only stated a potential advantage of combining the reference. A potential advantage, by itself, is insufficient to provide a teaching, suggestion, or motivation to combine the references to achieve the claimed invention. For example, the Examiner cannot pick and choose elements from the prior art simply because an advantage exists to combine the references.

Logically speaking, to constitute a proper teaching, suggestion, or motivation, the Examiner must establish that one of ordinary skill would both recognize the advantage and have a reason to implement the advantage. For example, a first reference may disclose the use of lasers to achieve nuclear fusion. A second reference may disclose that ultra-high power lasers deliver more energy. One of ordinary skill may recognize that an ultra-high power laser would be more useful to achieve nuclear fusion, though one of ordinary skill would be motivated to avoid combining the references because of the extreme expense of ultra-high power lasers. In this example, one of ordinary skill is motivated to avoid implementing the combination, even if he or she recognized the advantage, and so no teaching, suggestion, or motivation exists to combine the references.

Furthermore, the Examiner provided no reason why determining whether the offset is to be designated as a cut point and segmenting the input data as indicated by the set of cut points is necessary or even desirable. For example, *Cousins*' method is complete in and of itself for the purpose *Cousin* intends, and *Lee*'s method is complete in and of itself for the purpose *Lee* intends. Neither *Cousins*' nor *Lee*'s method requires "determining whether the offset is to be

designated as a cut point and segmenting the input data as indicated by the set of cut points.” Given the lack of a need for determining whether the offset is to be designated as a cut point and segmenting the input data as indicated by the set of cut points, one of ordinary skill would have no reason to combine the references to achieve the invention of claim 11. Thus, again, no teaching, suggestion, or motivation exists to combine the references to achieve the invention of claim 11. Certainly, the Examiner has not offered a proper teaching suggestion, or motivation to combine the references to achieve the invention of claim 11.

For the reasons presented above, the Examiner has failed to provide a proper teaching, suggestion, or motivation to combine the references and has failed to show that the references, individually or in combination, teach or suggest all the claim limitations. Accordingly, under the standards of *In re Vaeck*, the Examiner has failed to state a *prima facie* obviousness rejection against claims 11-12 and 28-29.

#### **F. GROUND OF REJECTION 6 (Claims 13-14 and 30-31)**

The Examiner rejects claims 13-14 and 30-31 as obvious over *Cousins* in view of *Lee*, and further in view of *Pulst*. Appellants request that the Board of Patent Appeals and Interferences overturn this rejection and direct the Examiner to allow the claims. Claim 13 is a representative claim of this grouping of claims. Claim 13 is as follows:

13. The method of claim 10, wherein identifying similar blocks further includes: determining whether blocks have a specified number of matching features.

##### **F.1. The Examiner Has Failed To State Proper Motivation To Modify Or Combine The References**

A proper *prima facie* case of obviousness cannot be established by combining the teachings of the prior art absent some teaching, incentive, or suggestion supporting the combination. *In re Napier*, 55 F.3d 610, 613, 34 U.S.P.Q.2d 1782, 1784 (Fed. Cir. 1995). The Examiner bears the burden of establishing a *prima facie* case of obviousness based on prior art when rejecting claims under 35 U.S.C. §103. *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art

reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Regarding a teaching, suggestion, or motivation to combine *Cousins*, *Lee*, and *Pulst*, the Examiner states:

As to claims 13, 30, *Cousins* and *Lee* identifying similar blocks further includes: determining whether blocks have a specified number of matching features. However, *Pulst* teaches determining whether blocks have a specified number (*i.e. classifiable features, [0046], Fig. 20*) of matching features (*i.e. processing is performed by enriching the matrix with classes for the features while retaining the number of data records and compressing according to the classes, reducing the number of data records, [0008]*). It would have been obvious to one of ordinary skill of the art having the teaching of *Cousins*, *Lee* and *Pulst* at the time the invention was made to modify the system of *Cousins* and *Lee* to include the limitations as taught by *Pulst*. One of ordinary skill in the art would be motivated to make this combination in order to take into account correlating instances of features and classes in enrichment and compression in view of *Pulst* ([0029]), as doing so would give the added benefit of performing a process by enriching the matrix with classes for the features while retaining the number of data records and compressing according to the classes, reducing the number of data records as taught by *Pulst* ([0008]).

Final Office Action of January 11, 2007, p. 14.

The Examiner asserts that one of ordinary skill in the art would be motivated to make this combination, as doing so would give the added benefit of performing a process by enriching the matrix with classes for the features while retaining the number of data records and compressing according to the classes, reducing the number of data records as taught by *Pulst*. However, the Examiner has only stated a purported advantage of combining the reference. A purported advantage, by itself, is insufficient to provide a teaching, suggestion, or motivation to combine the references to achieve the claimed invention. For example, the Examiner cannot pick and choose elements from the prior art simply because an advantage exists to combine the references.

Furthermore, the Examiner provided no reason why correlating instances of features and classes in enrichment and compression is necessary or even desirable. For example, *Cousins*' method is complete in and of itself for the purpose *Cousins* intends, and *Lee*'s method is complete in and of itself for the purpose *Lee* intends. Neither *Cousins*' nor *Lee*'s method requires "correlating instances of features and classes in enrichment and compression." Given the lack of

a need for correlating instances of features and classes in enrichment and compression, one of ordinary skill would have no reason to combine the references to achieve the invention of claim 13. Thus, again, no teaching, suggestion, or motivation exists to combine the references to achieve the invention of claim 13. Certainly, the Examiner has not offered a proper teaching suggestion, or motivation to combine the references to achieve the invention of claim 13.

For the reasons presented above, the Examiner has failed to provide a proper teaching, suggestion, or motivation to combine the references and has failed to show that the references, individually or in combination, teach or suggest all the claim limitations. Accordingly, under the standards of *In re Vaeck*, the Examiner has failed to state a *prima facie* obviousness rejection against claims 13-14 and 30-31.

#### **G. Conclusion**

As shown above, the Examiner has failed to state a *prima facie* obviousness rejection against any of the claims. Therefore, Appellants request that the Board of Patent Appeals and Interferences overturn the rejections. Additionally, Appellants request that the Board direct the Examiner to allow the claims.

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## **CLAIMS APPENDIX**

The text of the claims is as follows:

1. A method, in a data processing system, for reducing the size of an object, the method comprising:

dividing an object into a plurality of blocks;

identifying similar blocks within the plurality of blocks;

differentially compressing the similar blocks;

identifying identical blocks within the plurality of blocks;

suppressing the identical blocks without differentially compressing the identical blocks;

performing data compression on at least one block within the plurality of blocks, wherein the at least one block is not differentially compressed, wherein the at least one block is not suppressed, and wherein the step of performing data compression on the at least one block forms a reduced object; and

storing the reduced object in a computer readable media.

2. The method of claim 1, wherein the plurality of blocks are fixed in size.

3. The method of claim 1, wherein the plurality of blocks are variable in size and determined based on characteristics of content of the object.

7. The method of claim 1, further comprising:

compressing the object to form a compressed object;

comparing an effectiveness of the compressed object with an effectiveness of the reduced object; and

using the compressed object if the effectiveness of the compressed object is greater than the effectiveness of the reduced object.

8. The method of claim 7, wherein effectiveness is measured by one of speed of execution and object size.

9. The method of claim 7, further comprising:

using the reduced object if the effectiveness of the compressed object is less than the effectiveness of the reduced object.

10. The method of claim 1, wherein identifying similar blocks includes identifying one or more features of the plurality of blocks.

11. The method of claim 10, wherein identifying one or more features includes calculating one or more fingerprints for the plurality of blocks.

12. The method of claim 11, wherein identifying similar blocks further includes:

merging the one or more fingerprints for the plurality of blocks to form one or more fingerprint groups;

calculating super fingerprints for the one or more fingerprint groups; and  
comparing the super fingerprints to each other to determine common features among the  
super fingerprints.

13. The method of claim 10, wherein identifying similar blocks further includes:  
determining whether blocks have a specified number of matching features.
14. The method of claim 10, wherein identifying similar blocks further includes:  
identifying a reference block that matches a greatest number of features of remaining  
similar blocks.
15. The method of claim 10, wherein identifying similar blocks includes:  
using heuristics to identify similar blocks.
17. The method of claim 1, wherein the reduced object is transmitted over a network.
18. A data processing apparatus for reducing the size of an object, the apparatus comprising:  
software instructions and hardware for executing the software instructions, wherein the  
software instructions further comprise:  
division means for dividing an object into a plurality of blocks;  
identification means for identifying similar blocks within the plurality of blocks;  
compression means for differentially compressing the similar blocks;  
means for identifying identical blocks within the plurality of blocks;

means for suppressing the identical blocks without differentially compressing the identical blocks;

means for performing data compression on at least one block within the plurality of blocks, wherein the at least one block is not differentially compressed, wherein the at least one block is not suppressed, and wherein the means for performing data compression on the at least one block forms a reduced object.

19. The apparatus of claim 18, wherein the plurality of blocks are fixed in size.

20. The apparatus of claim 18, wherein the plurality of blocks are variable in size and determined based on characteristics of content of the object.

24. The apparatus of claim 21, further comprising:

means for compressing the object to form a compressed object;

means for comparing an effectiveness of the compressed object with an effectiveness of the reduced object; and

means for using the compressed object if the effectiveness of the compressed object is greater than the effectiveness of the reduced object.

25. The apparatus of claim 24, wherein effectiveness is measured by one of speed of execution and object size.

26. The apparatus of claim 24, further comprising:  
means for using the reduced object if the effectiveness of the compressed object is less than the effectiveness of the reduced object.

27. The apparatus of claim 18, wherein the identification means includes means for identifying one or more features of the plurality of blocks.

28. The apparatus of claim 27, wherein the means for identifying one or more features includes means for calculating one or more fingerprints for the plurality of blocks.

29. The apparatus of claim 28, wherein the identification means further includes:  
means for merging the one or more fingerprints for the plurality of blocks to form one or more fingerprint groups;  
means for calculating super fingerprints for the one or more fingerprint groups; and  
means for comparing the super fingerprints to each other to determine common features among the super fingerprints.

30. The apparatus of claim 27, wherein the identification means further includes:  
means for determining whether blocks have a specified number of matching features.

31. The apparatus of claim 27, wherein identification means further includes:  
means for identifying a reference block that matches a greatest number of features of  
remaining similar blocks.

32. The apparatus of claim 18, wherein the reduced object is stored in a storage unit.

33. The apparatus of claim 18, wherein the reduced object is transmitted over a network.

34. A computer program product, in a computer readable medium, for reducing the size of an  
object, the computer program product comprising:  
instructions for dividing an object into a plurality of blocks;  
instructions for identifying similar blocks within the plurality of blocks;  
instructions for differentially compressing the similar blocks;  
instructions for identifying identical blocks within the plurality of blocks;  
instructions for suppressing the identical blocks without differentially compressing the  
identical blocks;  
instructions for performing data compression on at least one block within the plurality of  
blocks, wherein the at least one block is not differentially compressed, wherein the at least one  
block is not suppressed, and wherein the step of performing data compression on the at least one  
block forms a reduced object; and  
storing the reduced object in a computer readable media.

## **EVIDENCE APPENDIX**

There is no evidence to be presented.

**RELATED PROCEEDINGS APPENDIX**

There are no related proceedings.